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10/734,188	12/15/2003	Rudolf E. Von Glan	11884/409201	1507

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EXAMINER

CHEN, TE Y

ART UNIT	PAPER NUMBER
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2161

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/734,188

Applicant(s)

VON GLAN, RUDOLF E.

Examiner

Susan Y. Chen

Art Unit

2161

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-2, 4-31 is/are pending in the application.
- 4a) Of the above claim(s) 30 and 31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 4-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

This office action is in response to the amendment filed on Nov. 15, 2006.

Claims 1-2 and 4-31 are pending for examination. Claims 1, 4, 11 and 15-20 have been amended. Claim 3, has been canceled. **Note: the instant amended claim 30 is withdrawn from consideration based on the Restriction/Election filed on July 06, 2006.**

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 11-19, are rejected under 35 U.S.C. 101 because the claimed subject matters direct to non-statutory subject matter.

As set forth in MPEP 21 06(II)A:

Identify and understand Any Practical Application Asserted for the Invention The claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." State Street, 149 F.3d at 1373, 47USPQ2d at 1601-02. The purpose of this requirement is to limit patent protection to inventions that possess a certain level of "real world" value, as opposed to subject matter that represents nothing more than an idea or concept, or is simply a starting

Art Unit: 2161

point for future investigation or research (Brenner v. Manson, 383 U.S. 519, 528-36, 148 USPQ 689, 693-96),¹ In re Ziegler, 992, F.2d 1 197, 1200-03, 26 USPQ2d 1600, 1603-06 (Fed. Cir. 199334. Accordingly, a complete disclosure should contain some indication of the practical application for the claimed invention, i.e., why the applicant believes the claimed invention is useful.

Apart from the utility requirement of 35 U.S.C. 101, usefulness under the patent eligibility standard requires significant functionality to be present to satisfy the useful result aspect of the practical application requirement. See Arrhythmia, 958 F.2d at 1057, 22 USPQ2d at 1036. Merely claiming nonfunctional descriptive material stored in a computer-readable medium does not make the invention eligible for patenting. For example, a claim directed to a word processing file stored on a disk may satisfy the utility requirement of 35 U.S.C. 101 since the information stored may have some "real world" value. However, the mere fact that the claim may satisfy the utility requirement of 35 U.S.C. 101 does not mean that a useful result is achieved under the practical application requirement. The claimed invention as a whole must produce a "useful, concrete and tangible" result to have a practical application.

The claimed invention is subject to the test of State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02. Specifically State Street sets forth that the claimed invention must produce a "useful, concrete and tangible result". The Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility states in section IV C. 2 b. (2) (on page 21 in the PDF format):

The tangible requirement does not necessarily mean that a claim must either be tied to a particular machine or apparatus or must operate to change articles or materials to a different state or thing. However, the

tangible requirement does require that the claim must recite more than a §101 judicial exception, in that the process claim must set forth a practical application of that §101 judicial exception to produce a real-world result. Benson, 409 U.S. at 71-72, 175 USPQ at 676-77 (invention ineligible because had "no substantial practical application").

As to claim 1, the submitting step at the claim body is too preliminary to refer back to the claimed "paralleling a database query" as recited in the preamble for conveying a practical application to one of ordinary skilled artisan, hence, the claim is non-statutory.

As to claim 11, in addition to the defects as discussed above in claim 1, the Office regards the claimed "computer program" as software per se and is non-statutory for at least this reason.

As to claims 15, 16, 18 and 19, in addition to the defects as discussed above in claim 1, the amended phrase "which when executed cause a computer to:" merely represents an intended usage instead of a practical execution, thus, it renders the claims as non-statutory.

As to claims 2, 4-0, 12-14, 16-17, these claims have the same defect as their base claims respectively, hence are rejected for the same reason.

To expedite a complete examination of the instant application the claims rejected under 35 U.S.C. 101 (nonstatutory) above are further rejected as set forth below in anticipation of applicant amending these claims to place them within the four statutory categories of invention.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 15-19, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 15, applicant fails to define the metes and bounds of the claimed subject matter "machine-readable medium", thus, it renders the claim indefinite.

As to claims 16-19, these claims have the same defect as their base claim, hence, are rejected for the same reason.

Because the ambiguous nature of instant invention, the following art rejection is to the best that the examiner is able to ascertain.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-2 and 4-10, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claims 1-2 and 4-10, the claim language extensively use the term "wherein" but the instant specification fails to provide actual steps to perform or limit these claims to a particular structure, thus, this term renders the claimed scope to be indistinct. See *In re Markman v. Westview Instruments*, 52 F.3d 967, 980, 34 USPQ2d 1321, 1330 (Fed. Cir.) (*en banc*), *off 'd*, U.S., 116 Ct. 1384 (1996).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-29, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,289,334 issued to Reiner et al. (hereinafter referred as Reiner).

Claim 1:

Reiner discloses a method of parallelizing a database query, comprising:

dividing a received query on a database table into a number of parallel subqueries, each parallel subquery including a discrete non-overlapping range constraint on a partitioning field of the database table [e.g., col. 2, lines 57- col. 3, lines 52, col. 7, lines 43-63; Fig. 3B and associated texts]; and

submitting the parallel subqueries to a database management system in place of the received query [e.g., col. 3, lines 65 – col. 4, line 8, col. 7, lines 64 – col. 8, lines 56, col. 13, lines 24-27, the Query Decomposer 75, Fig. 3B and associated texts].

Wherein, the partitioning field is populated by random numbers [e.g., the KSR Query Decomposition (QD) random hash key sequence loading technique at col. 28, line 21 – col. 29, line 48, KSR QD Product Overview, section 10.2.7, P. 104 -106].

Claim 2:

Except the limitations recited in claim 1, Reiner further discloses that the discrete non-overlapping range constraints collectively span the entire range of values in the partitioning field [e.g. col. 10, lines 37-52, Fig. 5 and associated texts].

Claim 4:

Except the limitations recited in claim 1, Reiner further discloses that said random numbers are distributed substantially uniformly [e.g., col. 4, lines 30-42].

Claim 5:

Except the limitations recited in claim 4, Reiner further discloses that the range constraint comprises a range of values of the random numbers in the partitioning field [e.g., col. 29, lines 31-43].

Claim 6:

Except the limitations recited in claim 5, Reiner further discloses that the range constraint for each individual parallel subquery is based on the number of parallel subqueries and an index number of the individual parallel subquery [e.g., col. 26, lines 18-66, col. 29, lines 45 – col. 30, line 7].

Claim 7:

Except the limitations recited in claim 1, Reiner further discloses that the database query comprises an SQL statement [e.g., col. 29, lines 31-43].

Claim 8:

Except the limitations recited in claim 1, Reiner further discloses the following:
extending each record of the database table to include the partitioning field [e.g., col. 4, lines 30-42]; and
populating the partitioning field of each record with a random number produced by a random number generator having a substantially uniform distribution [e.g., the KSR Query Decomposition (QD) random hash key sequence loading technique at col. 28, line 21 – col. 29, line 6].

Claim 9:

Except the limitations recited in claim 1, Reiner further discloses that receiving individual results of each parallel subquery [e.g., col. 24, lines 15-35]; and

separately supplying each of the individual results to subsequent parallel operations [e.g., col. 24, lines 36-67; Fig.(s) 17-20].

Claim 10:

Except the limitations recited in claim 1, Reiner further discloses that the number of parallel subqueries is determined by a method comprising:

setting the number of parallel subqueries based on the received query and a preferred number of database records to be processed by each parallel subquery [e.g., col. 20, lines 32-65, Fig. 8 and associated texts; the parallel interface & query decomposer technique at col. 145, lines 2-20];

issuing a trial database query having a trial range constraint based on the set number of parallel subqueries, said trial database query returning a trial count of matching database records [e.g., Q 8-Q12 processing at col. 16, line 40 – col. 17, line 32 & col. 43, lines 27-50, Fig. 19 and associated texts]; and

adjusting the number of parallel subqueries until the trial count falls within a predetermined tolerance factor [e.g., col. 43, line 54 – col. 44, line 52, Fig. 20 and associated texts].

Claim 11:

Reiner discloses the following:

means to divide a received query on a database table into a number of parallel subqueries, each parallel subquery including a discrete non-overlapping range

constraint on a partitioning field of the database table, the partition field populated by random numbers [e.g., col. 2, lines 57- col. 3, lines 52, col. 7, lines 43-63; Fig. 3B and associated texts, the KSR Query Decomposition (QD) random hash key sequence loading technique at col. 28, line 21 – col. 29, line 6, KSR QD Product Overview, section 10.2.7, P. 104 -106]; and

means to submit the parallel subqueries to a database management system in place of the received query [e.g., col. 3, lines 65 – col. 4, line 8, col. 7, lines 64 – col. 8, lines 56, col. 13, lines 24-27, the Query Decomposer 75, Fig. 3B and associated texts].

Claim 12:

This claim incorporates substantially similar subject matter as claim 8, in form of computer means, hence is rejected along the same rational.

Claim 13:

This claim incorporates substantially similar subject matter as claim 10, in form of computer means, hence is rejected along the same rational.

Claim 14:

This claim incorporates substantially similar subject matter as claim 9, in form of computer means, hence is rejected along the same rational.

Claim 15:

Reiner discloses a machine-readable storage medium having stored thereon a plurality of instructions for parallelizing a database query, the plurality of instructions comprising instructions executed by a computer to:

divide a received query on a database table into a number of parallel subqueries, each parallel subquery including a discrete non-overlapping range constraint on a partitioning field of the database table [e.g., col. 2, lines 57- col. 3, lines 52, col. 7, lines 43-63; Fig. 3B and associated texts]; and

submit the parallel subqueries to a database management system in place of the received query [e.g., col. 3, lines 65 – col. 4, line 8, col. 7, lines 64 – col. 8, lines 56, col. 13, lines 24-27, the Query Decomposer 75, Fig. 3B and associated texts];

wherein, the partitioning field is populated by random numbers [e.g., the KSR Query Decomposition (QD) random hash key sequence loading technique at col. 28, line 21 – col. 29, line 6, KSR QD Product Overview, section 10.2.7, P. 104 -106].

Claim 16:

This claim incorporates substantially similar subject matter as claim 8, in form of machine readable medium, hence is rejected along the same rational.

Claim 17:

This claim incorporates substantially similar subject matter as claim 6, in form of machine readable medium, hence is rejected along the same rational.

Claim 18:

This claim incorporates substantially similar subject matter as claim 10, in form of machine readable medium, hence is rejected along the same rational.

Claim 19:

This claim incorporates substantially similar subject matter as claim 9, in form of machine readable medium, hence is rejected along the same rational.

Claim 20:

Reiner discloses a computer system, including:

a processor coupled to a network [e.g., the units: 40A-C, 42A-C, 46, etc, Fig. 2 and associated texts];

an electronic file storage device coupled to the processor [e.g., the units: 54A-C, Fig. 2]; and

a memory coupled to the processor, the memory containing a plurality of executable instructions to implement a method of parallelizing a database query [e.g., the units: 40A-C, 42A-C, Fig. 2 and associated texts] , the method comprising:

dividing a received query on a database table into a number of parallel subqueries, each parallel subquery including a discrete non-overlapping range constraint on a partitioning field of the database table [e.g., col. 2, lines 57- col. 3, lines 52, col. 7, lines 43-63; Fig. 3B and associated texts] ; and

submitting the parallel subqueries to a database management system in place of the received query [e.g., col. 3, lines 65 – col. 4, line 8, col. 7, lines 64 – col. 8, lines 56, col. 13, lines 24-27, the Query Decomposer 75, Fig. 3B and associated texts], wherein, the partitioning field is populated by random numbers [e.g., the KSR Query Decomposition (QD) random hash key sequence loading technique at col. 28, line 21 – col. 29, line 6, KSR QD Product Overview, section 10.2.7, P. 104 -106].

Claim 21:

This claim incorporates substantially similar subject matter as claim 2, in form of computer system, hence is rejected along the same rational.

Claim 22:

This claim incorporates substantially similar subject matter as claim 3, in form of computer system, hence is rejected along the same rational.

Claim 23:

This claim incorporates substantially similar subject matter as claim 4, in form of computer system, hence is rejected along the same rational.

Claim 24:

This claim incorporates substantially similar subject matter as claim 5, in form of computer system, hence is rejected along the same rational.

Claim 25:

This claim incorporates substantially similar subject matter as claim 6, in form of computer system, hence is rejected along the same rational.

Claim 26:

This claim incorporates substantially similar subject matter as claim 7, in form of computer system, hence is rejected along the same rational.

Claim 27:

This claim incorporates substantially similar subject matter as claim 8, in form of computer system, hence is rejected along the same rational.

Claim 28:

This claim incorporates substantially similar subject matter as claim 9, in form of computer system, hence is rejected along the same rational.

Claim 29:

This claim incorporates substantially similar subject matter as claim 10, in form of computer system, hence is rejected along the same rational.

Response to Arguments

Applicant's arguments filed on July 6, 2006 have been fully considered but they are not persuasive.

The examiner respectfully disagrees with applicant's arguments under 35 U.S.C. § 101 rejection. As discussed on record, since the claims fails to meet the regulations as set forth in MPEP 21 06(II)A for the following reason:

As to claim 1, the submitting step at the claim body is too preliminary to refer back to the claimed "paralleling a database query" as recited in the preamble for conveying a practical application to one of ordinary skilled artisan, hence, the claim is non-statutory.

As to claim 11, in addition to the defects as discussed above in claim 1, the Office regards the claimed "computer program" as software per se and is non-statutory for at least this reason.

As to claims 15, 16, 18 and 19, in addition to the defects as discussed above in claim 1, the amended phrase "which when executed cause a computer to:" merely represents an intended usage instead of a practical execution, thus, it renders the claims as non-statutory.

As to claims 2, 4-0, 12-14, 16-17, these claims have the same defect as their base claims respectively, hence are rejected for the same reason.

Art Unit: 2161

The examiner further respectfully disagrees with applicant's arguments / piecemeal interpretations against Reiner's prior art, it is summarized as following:

1) Reiner does not teach of suggest a partitioning field populated by random numbers.

2) Reiner does not teach of suggest substantially uniformly distributed random numbers.

In reply to the above arguments, the examiner directs applicant's attentions to the excerpts discloses by Reiner at col. 28, line 21 – col. 29, line 48 and col., 4, lines 30-42, cited as followings:

"KSR has devised a way of leveraging QD with hashed clustering, by using hashed clusters in a way rather different than that envisioned by ORACLE, in an approach we may designate "small bucket hashing"."

"Small Bucket Hashing (elsewhere called "Scatter Clustering")"

"If an index has a fairly small number of distinct values, relative to the number of rows in a table, and if rows with a given index value can be scattered anywhere in the table, without regard to their key value on that index, then even after using the index, a much larger volume of data may have to be read from the table than the volume represented by rows with the desired key values, because only a small fraction of each block read consists of the desired rows. In the worst cases, all blocks of the table must be read, so that performance is worse than if the index isn't used at all (because of the extra reads of the index, and because of the higher proportion of random to

Art Unit: 2161

sequential I/O's). QD can ameliorate the problem by splitting up the load in parallel, but it remains the case that if the index doesn't provide speedup relative to full table scan without QD, then it won't provide speedup relative to full table scan with QD."

"If rows with matching key values could be clustered together, then using an index would reduce the total I/O in a much wider variety of cases, again, with or without QD. This is essentially what ORACLE clusters accomplish. Now, if instead of clustering rows with a given key value into one clump, they could be clustered in N clumps, where N is the degree of partitioning of the table, and if these N clumps could be read in parallel (i.e. if QD could be applied), we'd be better off by a factor approaching N."

"This can be accomplished by the following trick: create a hash cluster keyed on the desired columns, in a partitioned tablespace (i.e. the hash cluster is partitioned over multiple files, on multiple disks). Estimate the expected volume of data for each distinct key value, as you would for an ordinary hashed cluster. But instead of using that volume as the size to specify for a hash bucket when creating the hashed cluster, specify a much smaller bucket size (at the largest, V/N where V is the volume of data for each distinct key value, and N is the number of table partitions). Assuming that your ORACLE block size is also no larger than V/N (i.e. that V is large enough to be at least $N \times \text{blocksize}$), when you load the table you get an overflow chain for each key value that has at least N blocks (just the opposite of the usual goal in configuring a hashed cluster). If you load the table cleverly (and we'll need some further experimentation to define cleverly in this context, but probably loading in random hash key sequence will work, if your order of extents round-robins through the

Art Unit: 2161

files), you end up with the blocks for each overflow chain well-distributed among the files of the partitioned table."

"Now, create an (ordinary) index on the SAME columns as the hash columns. Because it is an ordinary index, each index entry consists of a key value /rowid pair, which points directly to the block containing the row in question. Also because it is a regular index, it can be used for range predicates as well as direct match predicates."

"When presented with a query that has an exact-match predicate on the hash key columns, the ORACLE optimizer will choose hashed access rather than using the index on those same columns, because under normal circumstances, hashed access would unquestionably be faster. However, when the Query Decomposer notices (in the EXPLAIN plan) that ORACLE has chosen hashed access, and that there is a regular index which has all of the columns of the hash key as its leading columns, it can generate an INDEX optimizer hint in the parallel subqueries, coercing the ORACLE optimizer to use the regular index rather than hashing. Since the parallel subqueries have rowid range predicates, this regular indexed query can be decomposed like any other. But because the data is clustered on the same column values, with blocks for each cluster key value well-distributed among the files of the partitioned table, many fewer blocks need to be read than if this were not a hashed table."

"As an example, consider the query:

SELECT * FROM HASHED TABLE WHERE HASHKEY COLUMN=5

This would be decomposed into parallel subqueries of the form:

Art Unit: 2161

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SELECT /*+ INDEX(HASHED TABLE REGULAR INDEX) */ *  
FROM HASHED TABLE  
WHERE HASHKEY COLUMN = 5  
AND ROWID >= <end of range>  
AND ROWID < <high end of range>"
```

"where a partitioned table called HASHED TABLE is hashed on the column HASHKEY COLUMN, and there is also an index called REGULAR INDEX on that same column."

And

"The improvement is characterized by a scatter cluster retrieval element that responds to a request for accessing a data record previously stored via the hashing element, by invoking the indexing element to retrieve that record in accord with the index value thereof, where stored records have previously been indexed by the indexing element with respect to the same fields (columns) used by the hashing element. In a related aspect of the invention, the hashing element stores the data records in hash bucket regions that are sized so as to create at least one overflow hash bucket region per root bucket region, and such that overflow bucket regions for a given root bucket region are distributed roughly evenly across different storage partitions."

"

Here, in contrary to applicant's arguments, Reiner clearly disclosed the claimed features by populating the KSR Query Decomposition (QD) random hash key number into the partitioning field table (e.g., the HASHED TABLE), the system will evenly distributed each cluster key value among the files of the partitioned table as claimed by the applicant.

As to the rest arguments, applicant merely rehashes issues already addressed on record, hence, as discussed above, the same 35 U.S.C. rejections are maintained.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Points of Contact


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan Y. Chen whose telephone number is 571-272-4016. The examiner can normally be reached on Monday - Friday from 7:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeff Gaffin can be reached on 571-272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Susan Y Chen
Examiner
Art Unit 2161

January 15, 2007



JEFFREY GAFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100